

Missouri Department of Natural Resources Comments
On
Draft Final Remedial Investigation (RI) at SS-18 (NGA), 3200 South Second Street
St. Louis, Missouri

General Comments

- 1) The document discusses where previous work has been conducted and where future investigative work is planned; however, the document does not clearly present why the areas are being investigated and what the potential contaminants of concern are.
- 2) The department and the Air Force need to select the source(s) for preliminary remediation goals and agree upon what scenario will be used for screening purposes. This information should then be included in the work plan.
- 3) Due to the high levels of PCBs present in the heating oil at the 8900 Broadway NIMA site and the high probability that the same source supplied heating oil to both NIMA facilities, the department requests that PCB analysis be conducted on all samples collected at heating storage tank sites.
- 4) The department recommends considering installing borings through the floors of buildings whenever appropriate and feasible.
- 5) Has the Air Force searched for records that describe the sites use as a Quartermaster Depot and a Medical Depot? The facility was a General Quartermaster Depot for 39 years (1884-1923) and a Medical Depot for 29 years (1923-1952). knowledge of the operations conducted during these periods would be beneficial in designing the RI to investigate all potential contaminants and areas of potential concern.
- 6) Given the age of the buildings at the site the department suggests pesticide sampling around the perimeters of all existing buildings.

Specific Comments

- 7) Work Plan, Section 1.4.1, page 1-6: The section does not discuss the hazardous substances that were stored or used at the site during the 80 years prior to the Air Force taking the over the site. This period should not be over looked and should be discussed as thoroughly as possible. The department believes numerous hazardous substances were stored, used, and possibly disposed of at the site during this period. Additional effort should be made to obtain historical records that cover period to gain a better of understanding of all the potential contaminants of concern and where releases may have occurred.
- 8) Work Plan, Section 1.4.1, page 1-6: The department suggests creating a table that lists the hazardous substances, the time frame they were used, what they were used for, and the volume used.

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SUPERFUND RECORDS

Defense Mapping - 2nd st
ID #: MA 457009003
Break: 3.0
Ser: A71A RI
N-d

- 9) Work Plan, Sections 1.5.4-1.5.6, Page 1-9: A significant release of hazardous substances occurred in the sub-basement, and based upon inspection of the plumbing it still could be on going. What substances were or could have been released and what sampling is planned within the sub-basement?
- 10) Work Plan, Section 1.5.9, page 1-10: The department recommends the Air Force discuss, with Bob Thureau of the NGA, the enrollment of the site in the departments Voluntary Cleanup Program. The site was enrolled in May 2002, and remedial action was approved for a UST site in September 2002. The Air Force should obtain copies of any and all information available for UST removals and discuss the work in the work plan.
- 11) Work Plan, Table 1-1: The department requests the Air Force develop a site map indicating the locations of both current and former buildings at the NIMA site. Several of the demolished buildings housed activities that likely used hazardous substances and/or had USTs. The department wants to evaluate proposed sampling locations in relationship to these former buildings.
- 12) Work Plan, Section 2.1.6.2, page 2-4: Was the sludge removed from this tank sampled prior to disposal? If so, what were the results of the analysis and where was the sludge disposed of? Since the drummed waste is in theory the same as the tank sludge, is it sampled prior to disposal and what contaminants are present? Has any of the sludge been shipped as a hazardous waste?
- 13) Work Plan, Section 2.1.6.2, page 2-4: How big is the settling tank? Where is the tank located? The document states no soil or groundwater samples were collected due to shallow bedrock, is it above grade in a sub-basement, or a tank pit shot into the rock? The Air Force needs to research this tank in greater detail before field operations begin so an appropriate sampling strategy can be developed.
- 14) Work Plan, Section 2.1.6.8, Area H: The departments tank guidance would be an excellent TBC for these investigations, particularly in regards to sampling locations and analysis. However, due to the high PCB levels present in the heating oil released at the Broadway site the department will also require analysis for PCBs in all the samples collected from Area H.
- 15) Work Plan, Section 2.1.6.8, Area H, page 2-8: Building 2 in Area D is listed as being a former boiler house, where the boilers coal or fuel oil fired? If fuel oil, where was the fuel oil stored and where are the product lines?
- 16) Work Plan, Section 2.1.6.8, Former USTs H1 thorough H4, page 2-8: Were any soil samples collected from beneath the USTs or product lines during the removal? Was PCB analysis performed on soil and/or groundwater samples? Analysis for PCBs should be conducted on all soil samples collected at all the former/existing fuel oil systems.

Page Three

- 17) Work Plan, Section 2.1.6.8, Former USTs H1 through H4, page 2-8: Given the capacity of the USTs, was the tank pit installed into the bedrock? If so, a bedrock well may be needed.
- 18) Work Plan, Section 2.1.6.8, Former Fuel Oil Line H25, page 2-9: Were the product line(s) located within a pipe chase, or buried in site soils? Was the piping (and pipe chase) removed during the UST removal? Were any samples of the oily substance encountered submitted for analysis?
- 19) Work Plan, Section 2.1.6.8, UST H5, page 2-10: Has this UST been upgraded in compliance with the 1998 upgrades, and has any leak detection ever been performed? Given the shallow bedrock depth on this portion of the site, are there any records that indicate if the tank pit was shot into bedrock?
- 20) Work Plan, Section 2.1.6.8, USTs H9, H12, H13, page 2-11: Have any soil samples collected from beneath the piping runs and below the dispenser islands?
- 21) Work Plan, Section 2.1.6.8, USTs H14/15 and Fuel Oil Line H24, page 2-11: What process was used to close these two very large USTs and the piping in place? Was the UST system cleaned and rinsed prior to closure? Were borings installed within the tank pit and beneath the product line(s)? These two USTs are very large and may be located in a tank pit that was installed into bedrock. The department again suggests the Air Force consider using the departments tank guidance as a TBC.
- 22) Work Plan, Section 2.1.6.8, UST H8, ASTs H19/H21, page 2-12: At what depth was bedrock encountered during the well installations? Was it shallow enough that the tank pits were shot from bedrock? Does the Air Force or NIMA have any theories on what the contents of H21 might have been based upon the activities that occurred in Building 20.
- 23) Work Plan, Section 2.1.6.8, USTs H11, H17, and H20, page 2-13: How was UST H11 system abandoned in place? Was the system cleaned? The borings for H20 are located so far away from the system that the data is not representative of the conditions near the UST and further sampling will be needed. Has any sampling occurred in the location of the UST thought to be H20 in the EBS? Is this tank system still in place?
- 24) Work Plan, Section 2.1.6.9, Area I, page 2-14: The department has doubts that the borings in the Phase II EBS were within the quarry if bedrock was too shallow to install a well. Based upon the volume of stone in the buildings and the perimeter wall the department believes the quarry depth would have been sufficient to permit a well installation. The geologic investigation should be beneficial in confirming the location and depth of the quarry.
- 25) Work Plan, Section 2.1.6.10, Aggregate Property, page 2-15: Please explain what ordnance testing was conducted at the site.

- 26) Work Plan, Section 2.1.6.10, Aggregate Property, Page 2-15: Do any records exist that might explain the elevated lead, PAHs and TPH DRO in surface soil at SOAG-02? Similarly, what are the potential sources for the very high lead levels at SOAG-03? The department will need significant convincing that these contaminate levels are not the result of previous use, particularly the lead contamination.
- 27) Work Plan, Section 2.1.7, page 2-16: Do any records exist that provide details on the activities/use of the site from 1884 to 1952?
- 28) Work Plan, Section 2.1.7, page 2-16: The Air Force will be conducting a baseline risk assessment and will have to fully evaluate the groundwater pathway. The city of St. Louis previously had a similar ordinance that was repealed. Therefore, the existing ordinance could also be repealed, potentially resulting in a complete ingestion pathway. In addition, the ordinance does not prohibit non-potable groundwater use (industrial process water, irrigation, etc) which could result in dermal and inhalation exposure. The existence of the ordinance is only noteworthy because it could be one of several institutional control layers if a groundwater remedy is needed, and institutional controls are selected as part of a groundwater remedy.
- 29) Work Plan, Section 2.2.3, page 2-19: The passage of the groundwater ordinance referenced in this section was not do to poor groundwater quality (high TDS) as a result of natural geologic factors. This ordinance was passed to allow groundwater contamination caused by man that presents an excessive health risk to remain and not be remedied since an ingestion pathway would not be complete. The ordinance was a part of the overall development of the departments draft risk based correction action guidance, hence the development of the MOA with the department.
- 30) Work Plan, Figure 2-5, page 2-26: The department suggests adding arrows indicating sewer flow direction.
- 31) Work Plan, Figure 2-5, page 2-26: Several of the sewer lines flow through areas of concern and the location of petroleum releases, the sewers could serve as preferential pathways and should be evaluated in areas where releases occurred.
- 32) Work Plan, Table 2-1, page 2-29: What UST sites fall under regulatory compliance and what is the status of each site? Are there other sites, releases or issues that fall under a regulatory program?
- 33) Work Plan, Section 3.1, 4th bullet, page 3-1: What are the appropriate risk-based screening criteria? The department and the Air Force need to agree upon the source(s) of screening levels and the exposure scenario before work begins. Agreement on these issues before fieldwork begins will hopefully allow the Air Force to define the nature and extent of the releases in one mobilization and determine the appropriate screening level for any contaminate previously unidentified.

- 34) Work Plan, Section 3.3, page 3-2: It concerns the department that the Air Force has not done an archive search to determine what specific activities were conducted at the site during the Army's tenure. This information could provide valuable insight into potential contaminants of concern, disposal practices, and areas of concern.
- 35) Work Plan, Section 3.7, page 3-5: The departments *Draft Missouri Risk Based Corrective Action* (MRBCA) should not be used for risk assessment activities at the NIMA site. Per the Defense Environmental Restoration Program, DOD agencies are supposed to conduct clean ups, etc. in a manner consistent with CERCLA, and in consultation with the EPA (10 USC section 2701(a)), which the department interprets to mean EPA's Risk Assessment Guidance for Superfund (RAGS). MRBCA is not promulgated; therefore it is not an ARAR. In addition, it has not received approval from the EPA for use on CERCLA sites. However, the department would consider using the Default Target Levels as screening values if the Missouri Department of Health concurs.
- 36) Work Plan, Section 3.7, page 3-6: The department and the Air Force need to agree upon the source(s) for risk-based screening levels and the exposure scenario that will be used during the RI. Once agreed upon this information should be included in the RI work plan.
- 37) Work Plan, Section 3.8, Step 4, page 3-7: A site is defined by the extent of the release, not the property boundary. The department will expect the Air Force to determine the full nature and extent of any release originating from the site regardless of whether it remains on the property or has migrated off-site.
- 38) Work Plan, Section 3.8, Step 5, page 3-7: The Air Force should remember that any risks exceeding unlimited use/unrestricted exposure (UU/UE) require a remedy. Therefore, screening levels should be selected that would allow for determining where UU/UE can occur.
- 39) Work Plan, Section 4.2.3, page 4-2: The department recommends defining "upper bedrock" the first time the term is used.
- 40) Work Plan, Section 4.2.3.1 through 4.2.3.7, pages 4-3 to 4-6: The department recommends discussing: the Potential Contaminates of Concern (PCOC) for each AOI, previous sampling results (soil and groundwater) and why a particular well type (overburden or bedrock) was selected for installation. The reader should gain a basic understanding of the issues at each site and the logic behind the work proposed. In addition, the department requests PCB analysis be conducted on soil samples collected near heating oil systems.
- 41) Work Plan, Sections 4.2.4 and 4.2.5, page 4-6: The department suggests completing Phases 2.4 and 2.5 prior to installing any monitoring wells, the data collected in these phases could be beneficial in locating new monitoring wells.

- 42) Work Plan, Section 4.2.5, page 4-6: In general, the department would like to see more borings installed at AOIs and around buildings; and is concerned one or two borings may not be sufficient to determine if a release has occurred.
- 43) Work Plan, Section 4.2.5, pages 4-6 to 4-7: The department recommends continuing borings until field screening or the absence of soil staining indicate the absence of contamination or refusal.
- 44) Work Plan, Section 4.2.5, pages 4-6 to page 4-7: If a VOC analysis will be performed wouldn't BTEX be detected also? Why the strong interest in BTEX only, there doesn't appear to be many gasoline USTs? What criteria will be used to select the samples for lab confirmation?
- 45) Work Plan, Section 4.2.5.1, page 4-7: What contaminants of concern at this AOI and what contaminants were previously identified in the sub-basement? Has the nature and extent of the release in the sub-basement been defined? What made the soils in the basement blue?
- 46) Work Plan, Section 4.2.5.2, page 4-7: Was the sludge sampled prior to disposal? If so, what were the results of the analysis and where was sludge disposed of? Has any of the drummed waste been sampled and what contaminants were present? Has any of the drummed sludge been shipped as a hazardous waste?
- 47) Work Plan, Section 4.2.5.2, page 4-7: How big is the settling tank and where is it located? The document states no soil or groundwater samples were previously collected due to shallow bedrock, is it located above grade in a sub-basement, or a tank pit shot into the rock? The Air Force needs to research this tank in greater detail before field operations begin so an appropriate sampling strategy can be developed.
- 48) Work Plan, Section 4.2.5.3, Page 4-8: Has sufficient soil data been collected at each tank system (beneath the tank and lines) to determine if a release has occurred? What activities were conducted within the building besides parts washing? Was there a lift system? What hazardous substances were stored and used in the building? Where was waste oil and spent solvent stored? Why are there no samples being collected from the beneath the floors?
- 49) Work Plan, Section 4.2.5.4, page 4-8: The department suspects the chlordane may have been applied around this building and all of the buildings at the site. How will the limited number of borings/samples proposed here and at other buildings determine the nature and extent of Chlordane use/disposal? Why is one of the proposed borings in such close proximity to monitoring well SD00-03?
- 50) Work Plan, Section 4.2.5.4, page 4-8: What is the condition of the floors within the pesticide building? What was the fuel for the incinerator and boiler, where was it stored and how was it transmitted?

- 51) Work Plan, Section 4.2.5.5, page 4-9: What is the target depth for the proposed borings in Area E?
- 52) Work Plan, Section 4.2.5.6, page 4-9: The department would like to see a more vigorous investigation than two soil borings twenty feet off one corner of the building.
- 53) Work Plan, Section 4.2.5.7, page 4-9: Since this was an oil disposal area, the department requests analysis for TPH also be conducted.
- 54) Work Plan, Section 4.2.5.8, page 4-10: The department suggests the Air Force use the department's Petroleum Storage Tank Closure Guidance in selecting sampling locations for the tanks and lines and the appropriate analytical. In addition, due to the high levels of PCBs found in the heating oil at the Broadway site, the department also requests PCB analysis be conducted.
- 55) Work Plan, Section 4.2.5.8, page 4-10: The locations of the product lines and dispensers (if applicable) should be added to the figures.
- 56) Work Plan, Section 4.2.5.8, page 4-10: The department questions the need for field analysis for BTEX on the tanks systems that stored heavier petroleum products (heating oil).
- 57) Work Plan, Section 4.2.5.10, page 4-14: The department suggests adding chlordane sampling around all the buildings as part of this section.
- 58) Work Plan, Section 4.2.6, page 4-14: Will the number of samples to be collected be sufficient to allow the Air Force to calculate a statistically sound background number? Will ten samples provide sufficient power?
- 59) Work Plan, Section 4.2.6, page 4-14: Will collecting the samples from a depth of five feet be beneficial if most of the Air Force samples are collected at 10 to 20 feet? For example, if the level of metals found at 10 to 20 feet is above the calculated background levels found at 5 feet, is it contamination or are the metal levels naturally higher at the greater depth.
- 60) Work Plan, Section 4.2.6, page 4-14: The department is uncomfortable with determining groundwater background metals from wells located on the site being investigated. Further discussion is needed on this issue.
- 61) FSP, Section 2.1.2.3, page 2-2: Given the wide spread storage of petroleum products the department recommends testing for TPH in all water samples.
- 62) FSP, Section 2.1.2.3, page 2-2: Does the Air Force plan on conducting slug tests on the overburden wells? Would pump tests provide better information than slug tests?

- 63) FSP, Section 2.1.2.5, page 2-4: What criteria will be used to select the interval where the subsurface soil sample will be collected? PID reading, discoloration?
- 64) FSP, Section 2.1.2.5, page 2-4: The department would prefer borings be installed to bedrock or to a depth of 20 feet. Contaminated soil beneath the current potentiometric surface could be overlooked if the borings are terminated just below the groundwater surface.
- 65) FSP, Section 2.1.2.5, page 2-4: Would it be any more costly to field screen with a PID and submit all the samples to a fixed laboratory for analysis by EPA method 8260, 8270 (TPH) and TAL inorganics, with a three day turn around? The benefit would be more data that meets the data quality objectives and could be used in the risk assessment.
- 66) FSP, Section 2.1.2.5, page 2-4: What criteria will be used to select samples for fixed lab analysis? Positive detection during field screening? Arbitrary?
- 67) FSP, Section 2.1.2.5, page 2-4: Will groundwater samples be filtered before being submitted to the lab for analysis?
- 68) FSP, Table 2-1, page 2-13: Why so much analytical in addition to the TAL inorganics? It's tap water; it should at least meet the MCL.
- 69) FSP, Table 2-2 and Table 2-3, pages 2-14 and 2-16: The department questions the benefit of analyzing water samples for dioxins/furans given their solubility.
- 70) FSP, Table 2-5, page 2-20: Why is a separate analysis needed for BTEX? Can't they be reported along with TCE as part of the method 8260?
- 71) RAWP, Section 1.2, page 1-1: The Defense Environmental Restoration Program (DERP) statutes and the National Contingency Plan strongly suggest, if not require, the Department of Defense to follow/comply with the CERCLA process and complete a baseline risk assessment (BRA). MRBCA does not require a baseline risk assessment and often allows the exclusion of risk where remediation is planned. This exclusion short circuits the CERCLA process by allowing a remedy to be inserted into the RI process, rather than being evaluated in the FS/PP when the public has an opportunity to provide input.
- 72) RAWP: To expedite BRA reviews, the department requests that BRA work plans and BRAs have planning tables similar to those presented in the EPA Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments) (RAGS, Part D). RAGS, Part D, has instructions for completion of planning tables in a format preferred by the department. Using these tables, the state needs 1) the default exposure assumptions for each scenario defined, 2) the toxicity values using EPA source hierarchy determined for each COC, and 3) intake models illustrated that are intended to assess risk.

- 73) RAWP, Section 3.1, page 3-2: Although groundwater extraction for potable use is prohibited, it could still be used for irrigation, industrial process water, or other non-potable uses.
- 74) RAWP, Section 3.1, page 3-2: Although a construction workers dermal exposure might be limited, the department has serious concerns about the validity of the assumption that a worker will always have on appropriate PPE. However, the inhalation pathway cannot simply be overlooked, the department must insist the dermal and inhalation pathways for both soil and groundwater be evaluated for the construction worker.
- 75) RAWP, Section 3.1, page 3-2: The department must insist the Air Force evaluate the risks presented to construction workers working on or in the storm sewers, the departments expectation is a complete BRA. The Air Forces plans to vigorously sample the storm sewers in the Work Plan and then summarily dismisses the sewers in the risk assessment work plan because the pathways are deemed insignificant. Please explain.
- 76) RAWP, Figure 3-1: The groundwater pathway for the construction worker should at a minimum be added to the figure.

Department of Health and Social Services

Field Sampling Plan, Specific Comments

- 77) FSP, Section 2.1.2.4: Further discussion should be added about the purpose and advantage of using the Membrane Interface Probe (MIP) versus other conventional sampling techniques that will be used in other phases of this investigation. Second, SAIC should not use the MIP results to develop exposure point concentrations in the human health risk assessment. This type of in-situ screening method may artificially inflate the contaminant concentrations. Risk Assessment Guidance for Superfund (RAGS) guidance does not recommend field sampling or rapid screening techniques for use in risk assessment because of the higher detection limits and poor accuracy of field sampling equipment.
- 78) FSP, Section 2.1.2.5: Direct push soil sampling will be conducted near MIP sample locations. Because of the heating element in the MIP probe, the area adjacent to the MIP borehole may alter the volatile organic compounds (VOC) concentrations. SAIC should give consideration to the direct push sampling location to ensure accurate sample results. Please include a discussion acknowledging this problem. Also, the mobile gas chromatograph has its limitations for risk assessment proposes. DHSS would prefer that 20 percent of the samples be submitted to a fixed base laboratory for VOC or other analysis.
- 79) FSP Section 2.1.2.6: Background sampling depths for surface and subsurface soil should be consistent with the soil sampling depths defined in the risk assessment work plan, Volume II. We suggest using the Environmental Protection Agency's (EPA) *Soil Screening Guidance* to define surface and subsurface soil depth. We also suggest that a comparison be done to published statewide background sampling such as the U.S. Geological Survey *Geochemical*

Survey of Missouri 1984 by R. Tidball publication or the online U.S. Geological Survey, 2001, *Geochemistry of soils in the U.S. from the PLUTO database*.

In this section, SAIC did not present statistical techniques for the determination of on-site background groundwater concentrations. We suggest the use of Singh, et. al., *Estimation of Background Levels in Contaminants* as a method to statistically analyze existing site-wide data to determine background values of contaminants. This estimation is made easier with the use of EPA's PROUCL software.

Risk Assessment Work Plan, General Comments

- 80) SAIC selected the *Departmental Missouri Risk-Based Corrective Action (MRBCA) Technical Guidance* as the general risk assessment approach for the human health risk assessment. The MRBCA guidance permits the determination of risk by excluding contaminated media in areas where remediation is planned. As defined in EPA's *Risk Assessment Guidance for Superfund, Part A, Volume I: Human Health Evaluation Manual* EPA/540/1-89/002 (12/89), Page 1-11, "Baseline risk are risks that might exist if no remediation or institutional controls were applied at a site." Based on RAGS, DHSS's opinion is that the baseline risk assessment (BRA) must reflect conditions that existed before any Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remediation or institutional controls occurred. We also expect the BRA to conform to RAGS and reflect the most basic, unrestricted use of the site.

Furthermore, under CERCLA, using the data developed under the remedial investigation (RI), the remedial project manager (RPM) must conduct a site-specific BRA to characterize the current and potential threats to human health and the environment that may be posed by contaminants released to and/or migrating within all environmental media. The overall objective of a CERCLA risk assessment is to provide risk-based information to the project managers for remedial decision-making (i.e., deciding whether or not remediation of a site may be needed because of potential threats to human health and the environment).

- 81) It is advantageous for the RPM to develop a BRA as part of the RI in order to:

Identify current and reasonably likely future land uses. Also, identify on-site and off-site population characteristics. This is important if a groundwater plume is not stable and migrating off-site to receptors. A response action may be needed to immediately address the problem.

Establish the baseline conceptual site model that reflects basic, unrestricted use of the site (i.e., the exposure model -- the combination of all complete exposure pathways and routes of exposure that enable site-related hazardous substances to enter the human receptor).

Focus on data needs and data quality objectives based on an understanding of the baseline conceptual site model.

Establish accurate exposure point concentrations (EPCs) or calculate concentrations by the appropriate exposure release/dispersion or bioaccumulation models. RAGS guidance requires a reasonable maximum exposure (RME) versus an averaged exposure in MRBCA. Thus, because of uncertainty associated with estimating the true mean of the exposure concentration, the upper 95% confidence limit on the arithmetic mean should be used rather than the average value. Finally, groundwater data should have two consecutive years averaged temporally. This will provide data that shows seasonal variation in EPCs.

Determine baseline risks so site-specific cleanup criteria and remedial alternatives can be determined that are appropriate for the receptors and the contaminants of concern.

Risk Assessment Work Plan, Specific Comments

82) Section 2.1: The validation procedure used in the review of Phase II Environmental Baseline Survey should be made available for the risk assessor and reviewer if this data is to be used in quantitative risk assessments. A table demonstrating the analytical methods used in previous investigations compared to current analytical methods should be provided for review. Also, sample quantitation limits (SQLs) of previous investigations should be evaluated as demonstrated in RAGS Part A. Eliminated data should be apparent to the reviewer and provided in table format.

83) Section 3.2: The baseline conceptual site model (CSM) demonstrating human intake routes and exposure pathways for the NGA site should be modified. The following items need to be included in Figure 3-1:

Exposed Populations: Off-site resident or commercial workers and site visitors as current and future receptors populations.

Inhalation should be added to the surface-water runoff because of the potential for volatilization.

Inhalation should be added to the on-site subsurface soils because Section 3.3 indicated that trenching activities could be part of the construction worker risk considerations.

Inhalation should be added to the groundwater medium because of the potential for construction worker exposure to shallow groundwater. Building 36D has standing groundwater in the basement.

Indoor and outdoor air should be added to the air medium, as the potential exists for exposure from contaminated soil and groundwater.

- 84) Section 3.3: The segregation of soil into surface and subsurface should follow RAGS guidance as closely as possible. We suggest using EPA's Soil Screening Guidance to define surface and subsurface soil depth. Surface soil of three feet in depth is not acceptable under RAGS guidance. We suggest review of the site's soil type, historic soil sampling data, and current sampling methods. After review, please provide an update to this section. Ten feet is an adequate maximum depth for subsurface soils.
- 85) Section 4.0: Because of the presence of lead, the Integrated Exposure Uptake Biokinetic Model (IEUBK Model) for children and the Adult Lead Model (ALM) should be used. Please provide inputs and assumptions for the ALM and the IEUBK model for our review. Please see EPA recommendations for exposure values to use in the ALM because values have changed and are explained in the EPA's *Blood Lead Concentrations of U.S. Adult Females: Summary Statistics from Phases 1 and 2 of the National Health and Nutrition Evaluation Survey (NHANES III)* (OSWER #9285.7-52, March 2002)
- 86) Section 4.1: The selection of chemicals of concern should be completed primarily using the EPA Region 9 Preliminary Remediation Goals (PRGs), and secondarily, the MRBCA Risk-based Target Levels (RBTLs). Screening values missing from the Region 9 PRGs may be found in the MRBCA RBTLs. Please modify this section to reflect this change.
- 87) Section 4.1, Page 4-2: DHSS recommends that constituents not be eliminated from risk calculations simply because they are attributed to background. Rather, we would expect SAIC to include two sets of calculations, one set that includes the total hazard index (HI) and target risk (TR) with all COCs, and another set that includes total HI and TR with all COCs minus those considered background. The risk assessment should address background in a manner consistent with *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites* (OSWER 9285.7-41) and *Role of Background in the CERCLA Cleanup Program* (OSWER 9285.6-07P).

Environmental Protection Agency Comments

Critical Comments

- 88) § Approval and Signature Sheet. This sheet is missing from the document and needs to be included, signed and dated by at least the contractor's project manager and QA manager and EPA's project manager and RQAM.
- 89) § Distribution List. This section is missing from the document and should include all individuals who are to receive a copy of the QA Project Plan and should identify their organization.
- 90) FSP § Project Organization and Responsibility page 3-1. This section should also include key EPA and MDNR personnel, especially the EPA project manager, if only by position.

91) FSP Tables 2-1 through 2-3 Sample Analysis Summary, pages 2-13 to 2-18.

These tables included the Method EPA SW-846 8260B for "VOCs including Oxygenates; preserved with TSP." What is TSP, trisodium phosphate? Why is this preservative being used instead of the required hydrochloric acid? Has this preservation method been validated and how does it affect the holding time?

These tables also include the Method EPA SW-846 365.1 for Phosphorous. This method is not from SW-846 and is correctly identified in the QAPP as EPA Method 365.1.

92) QAPP § 7.2 Analytical Procedures, pages 7-3 to 7-54.

There are several tables in this section that contain reporting limits (RL) for the various methods being used. Several of the analytes in these RL Tables are shaded "indicating a laboratory reporting limit which is greater than MRBCA Default Target Level criteria".

MRBCA criteria have not been adopted for use by CERCLA/EPA, EPA requests Region 9 PRGs be used.

No matter what criteria is used, there is no further discussion in these documents of what action will be taken if the RL exceeds the target level criteria. A discussion of the use of data at these reporting limits needs to be addressed.

These RL Tables also contain several analytes that are outlined and boldface which "indicates a laboratory reporting limit which is greater than the AFCEE QAPP 4.0.01 criteria." The use of AFCEE QAPP 4.0.01 criteria is not discussed elsewhere in this document. Again, if their use is required, a discussion of the use of data at these reporting limits needs to be addressed.

General Comments

93) QAPP § 6.1.12 EPA Method SW3550 – Percent Solids, page 6-3 and Table 6-1, page 6-1.

The title of this method is Ultrasonic Extraction and the correct reference for this analysis, if this method is used, would be SW-846 3550 Section 7.2.

94) These documents were reviewed against the UFP QAPP which is required for all federal facilities in Region 7. For future reference, the use of the UFP QAPP format for these documents would ease the review and possibly prevent the reviewers from missing information contained within several documents. It would also provide a uniform format for all QAPPs.